

CLAIMS

1. A purified functional polynucleotide comprising an actuator domain, a receptor domain, and a bridging domain, wherein interaction of the receptor domain with a signalling agent triggers a conformational change in the bridging domain which modulates the activity of the actuator domain.
2. A polynucleotide according to claim 1 wherein the signalling agent is a ligand that binds to the receptor domain.
3. A polynucleotide according to claim 1 wherein the activity of the actuator domain is catalytic.
4. A polynucleotide according to claim 1 wherein at least two of the domains are non-overlapping.
5. A polynucleotide according to claim 1 wherein at least two of the domains are partially or completely overlapping.
6. A polynucleotide according to claim 1 which is RNA.
7. A polynucleotide according to claim 6 which is a hammerhead ribozyme.
8. A polynucleotide according to claim 1 which is DNA.
9. A polynucleotide according to claim 1 wherein the actuator domain exhibits catalytic activity that is triggered by binding of a chemical compound to the receptor domain.
10. A biosensor comprising a polynucleotide according to claims 1, 2, 3, 4, 5, 6, 7, 8, or 9.

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13. A method according to claim 12 wherein the presence or absence of a ligand or its concentration is determined by observation of a chemical reaction.

14. A method according to claim 12 wherein the presence or absence of a ligand or its concentration is detected by observation of a change in polynucleotide configuration or function.

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16. A process according to claim 15 wherein the receptor domain has a ligand binding site and wherein ligand binding triggers a conformational change in the bridging domain that stimulates catalytic activity of the actuator domain.

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18. A process according to claim 17 wherein the receptor domain has a ligand binding site and wherein ligand binding triggers a conformational change in the bridging domain that stimulates catalytic activity of the actuator domain.

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19. A process for preparing RNA sensors according to any of claims 15, 16, 17, or 18.

20. A process for preparing DNA sensors according to any of claims 15, 16, 17, or 18.

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